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ABSTRACT

A federally funded research report, titled "The Development of a Program in Orientation and Mobility for Multi-Handicapped Blind Infants" by Randall Harley et al., is briefly summarized in this one-page abstract. The report discusses the development of the "Peabody Mobility Kit for Infants," a package of assessment and training materials for use by parents and teachers of blind, multiply impaired infants aged 0-2. The materials address the areas of: cognitive development; motor development; and sensory development, which includes awareness and localization of sound, and movement and touch. The materials use a graduated guidance procedure to train the child to perform increasingly more advanced behaviors. The items on the assessment scales correspond to the behaviors taught by the training materials, and key skills are arranged in a developmental sequence. Results of a field test indicate that the programmed intervention achieved significant gains in the cognitive area and the movement and touch area, but not in the motor and sound localization areas. (JDD)

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RESEARCH & RESOURCES ON SPECIAL EDUCATION

ABSTRACT XIII
OCTOBER 1987

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ORIENTATION AND MOBILITY FOR BLIND INFANTS

The ability to move about safely and efficiently is an integral component of a child's development and is likely to affect later social, educational, and physical competence. Researchers have found that there is a prolonged period of immobility during the first year of life of blind infants that limits their ability to explore and discover objects in the environment. Safe and efficient mobility requires a complex set of interrelated tasks; the infant must possess the locomotor skills and the cognitive and sensory ability to acquire and use information from the environment in order to maintain his or her orientation in space. There is consensus among professionals that early intervention can improve the orientation and mobility of young, multiply impaired blind children, and there is also consensus about the skills considered important for the development of independent movement.

The Development of a Program in Orientation and Mobility for Multi-Handicapped Blind Infants reports on the *Peabody Mobility Kit for Infants*, a package of assessment and training materials for use by parents and teachers of blind, multiply impaired infants aged 0–2. (Earlier studies have developed assessment and training materials for children aged 2 to 6.) The report includes a brief review of the literature on orientation and mobility and describes the development of the criterion-referenced assessment scales and programmed instruction.

The materials address three major curricular areas: cognitive, motor, and sensory development. Sensory development includes two subcomponents: (a) awareness and localization of sound, and (b) movement and touch. On the assessment scales, key skills or behaviors in each area are arranged in a sequence that approximates a normal developmental sequence. Each behavior is specified in the scale, along with the materials needed to assess the behavior; the procedure for conducting the assessment; the criterion for scoring the behavior as present, emerging, or absent; and the scoring procedure.

The items on the scales correspond to the behaviors taught by the programmed instruction training materials. The assessment scales determine the child's present level of functioning, which serves as the beginning point for training. Once this point is known, the remaining skills listed on the scale are taught to the infant in developmental sequence.

The training uses a graduated guidance procedure. For example, the child is taught to reach and grasp a soundmaking toy in the following three stages: First, the trainer uses hand-over-hand guidance until the child successfully performs the behavior six times consecutively. Then the trainer prompts the child with a nudge on the shoulder to initiate hand movement toward the toy. Training is continued using the shoulder nudge as a prompt until the child performs the task six consecutive times. Then training progresses to the next level—the child is given a verbal prompt along with a cue, such as a tap on the hand or shoulder. Using this method, the child is trained to perform increasingly more advanced behaviors until he or she can perform the most developmentally advanced behavior on the scale.

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METHOD

The assessment scale and training program were field-tested on a sample of 22 multiply impaired children who had little or no means of independent mobility, were in the age range of 0–2 years, had at least rudimentary fine motor skills (i.e., the ability to reach, grasp, and release), and either had no vision or had low vision and relied primarily on tactual and auditory cues rather than visual cues. Subjects were pretested, then received up to 16 weeks of training before posttesting.

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The experimental design employed in the study was a modification of a repeated measures or treatments by subjects paradigm. Each subject served in both experimental and control conditions, and each generated four units of analysis, one or two for intervention, and the remaining for control. This design took full advantage of the limited number of participants in the experiment, and assured that all children received some intervention during the study.

The primary data analyzed were the gain scores the subjects attained on the assessment instrument. An analysis of home-based instruction (provided by parents) versus center-based instruction (provided by teachers) was also conducted. In addition, teacher evaluations of the instructional materials were solicited, and all trainers collected continuous data on the students' progress as they worked through the materials. After the intervention, a questionnaire was sent to the parents and teachers who had provided training.

RESULTS

The results of the statistical analyses suggest that the programmed intervention was generally successful, with statistically significant gains achieved in the Cognitive and Movement and Touch skill areas. Although the subjects did not show significant gains in the Motor and Sound Localization areas, the authors of the study suggest that results in these areas may have been confounded by the children's physical therapy and classroom activities, which were similar to the intervention program and may have raised the gain scores of the control group. The results of the analysis of home-based versus center-based training indicate that parents can successfully execute a pre-mobility intervention program for their children, although some parents may be more successful than others. Results of the questionnaire indicated that parents and teachers believed the materials were well organized, sequential from basic to more advanced skills, and useful in facilitating behavior change in their children.

IMPLICATIONS

The authors suggest that further study is needed to more thoroughly assess the validity of the training package and to replicate the findings of the present study. However, it appears that the *Peabody Mobility Kit for Infants* is a potentially important product that can provide training in skills critical to the development of blind, multihandicapped infants.

The Development of a Program in Orientation and Mobility for Multi-Handicapped Blind Infants. 1986. 134 pp. Randall K. Harley, Richard G. Long, John B. Merbler, Thomas A. Wood, and M. Beth Langley, George Peabody College of Vanderbilt University. U.S. Department of Education Grant No. G008400665. Available for $.78 (microfiche) or $11.10 (hard copy), plus postage, from ERIC Document Reproduction Service, 3900 Wheeler Avenue, Alexandria, VA 22304 (1-800-227-3742). Order ED Number 277 190. *The Peabody Mobility Kit for Infants* is available from the Steolting Company, 1350 S. Kostner Ave., Chicago, IL 60623.

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